

Modular Low-emission Cogeneration

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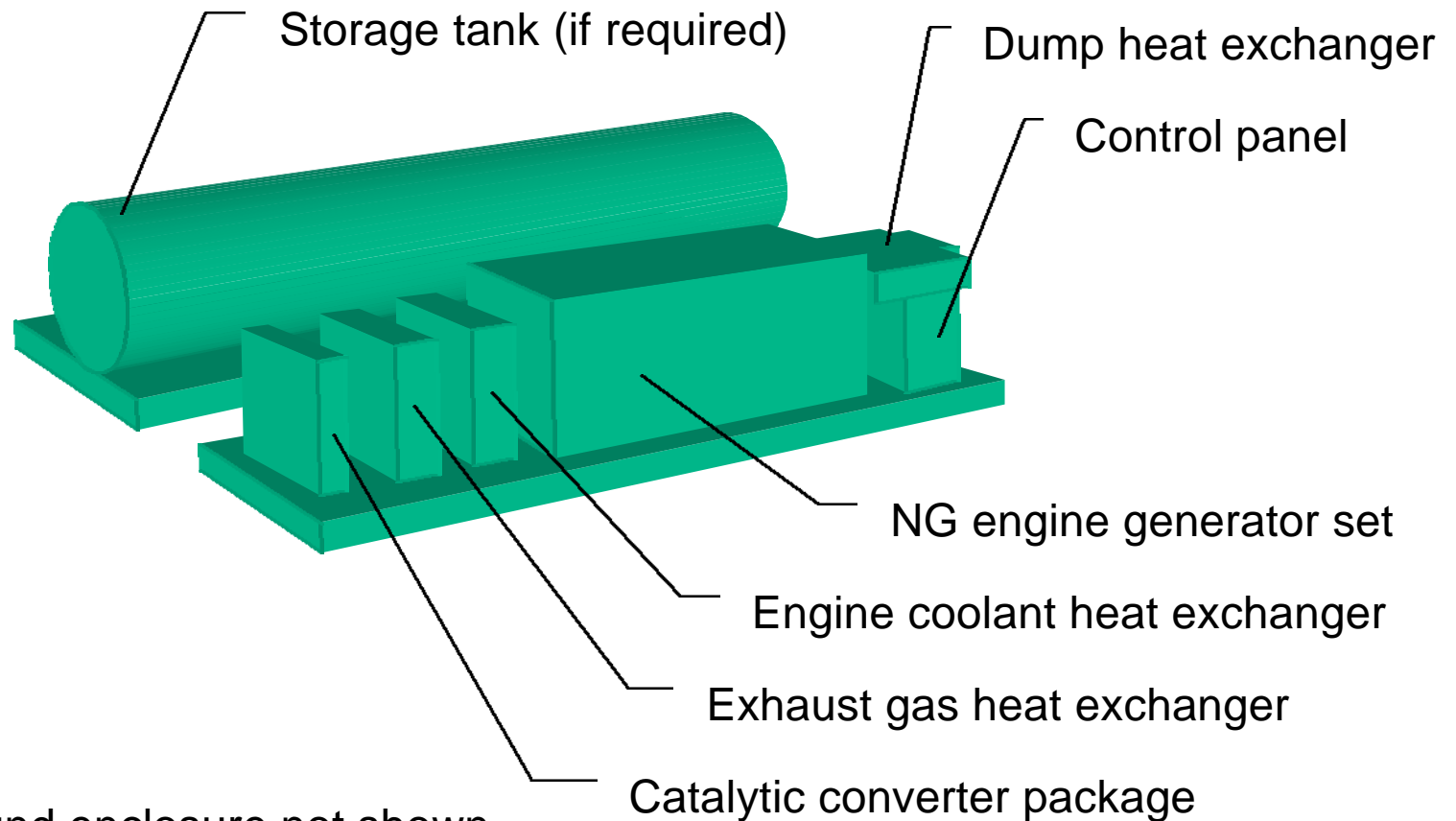
Modular Low-emission Cogeneration

- Low-emission Technology
- Standardized Factory-built Modules
- 60% Reduced Equipment Costs
- 40% Reduced Site-specific Costs

Low-emission Technology

- 15 yr Development by Vanguard Energy
- Catalytic Converter Technology
- Tested by SoCal Gas
- Passes SCAQMD specs
- 1 ppm NOX

Standardized Factory-built Modules



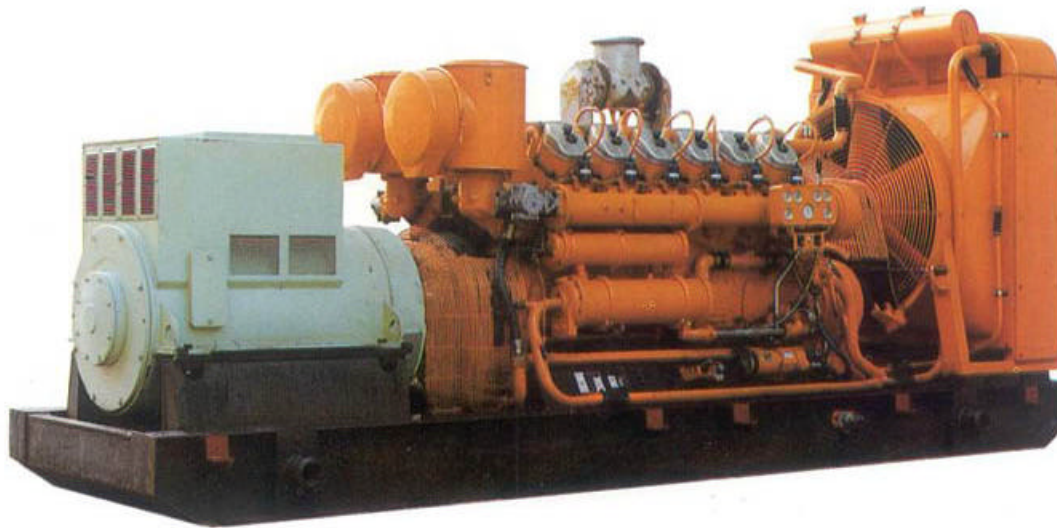
Note: Sound enclosure not shown

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60% Reduced Equipment Costs

- Factory Made: low capital cost
- Shipped to site in cargo containers
- Standardized sizes
- Only final connections made on-site

High reliability NG gen set



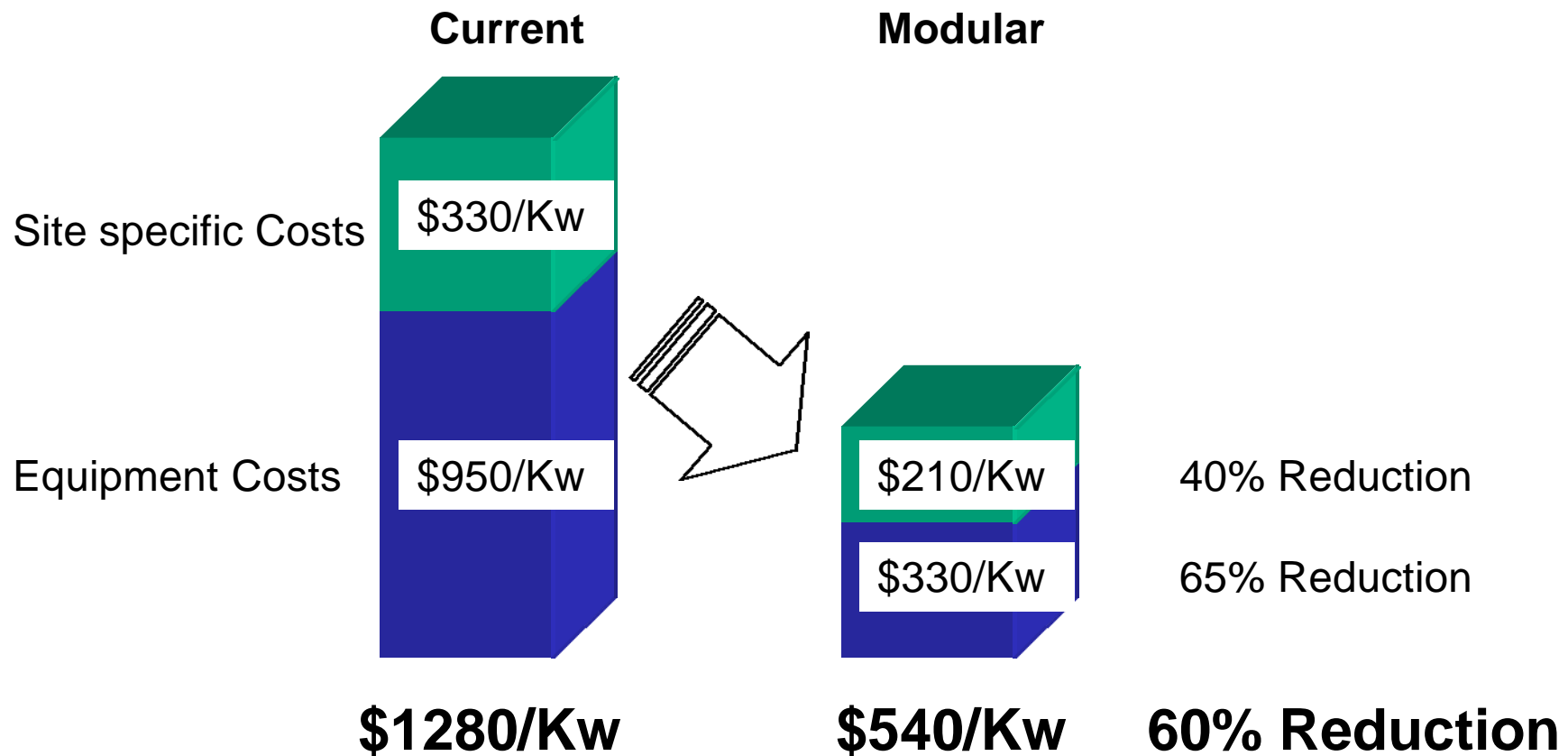
- Low operating speed: 1200 rpm
- Individual sleeve replacement
- 80,000 hour life

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40% Reduced Site-specific Costs

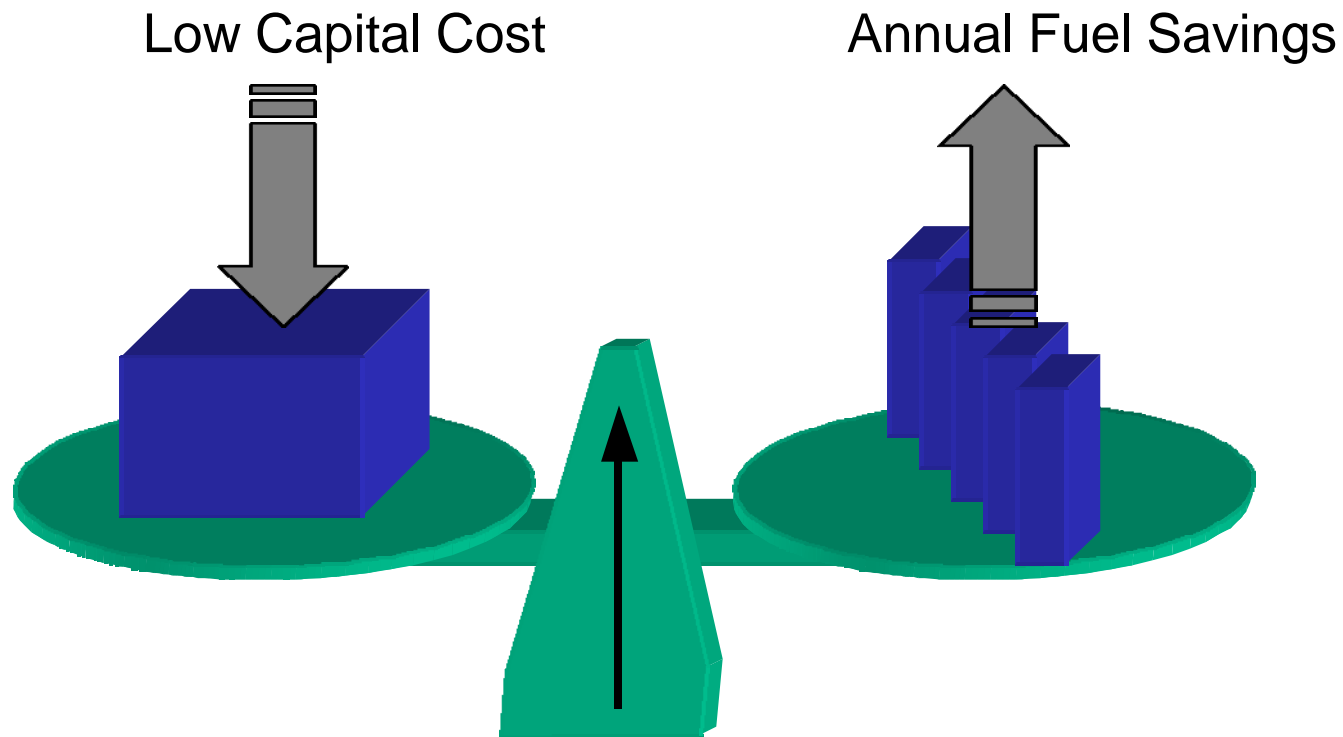
- Industry-specific modules
 - Hotels
 - Hospitals
 - Plating
 - Fabrics
 - Food processors
- Simplified: B1 contractor installation
- Site installation software
- Handbook and manual

Low Cost Modular Systems



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Fast Payback



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500Kw Cogen Installation

Costs in \$ 000s, 24/7 operation, Electricity rate: \$.0126/Kw-hr, Gas: \$.65/therm

				Current	Modular
Total Kw-hr electrical savings/year				\$ 543	\$ 543
Demand Savings/year				\$ 34	\$ 34
Facility-Standby/year				\$ (7)	\$ (7)
Total electrical savings/year				\$ 570	\$ 570
Boiler savings/year				\$ 195	\$ 195
Fuel cost/year				\$ (348)	\$ (348)
Maintenance cost/year				\$ (30)	\$ (30)
Total Net Energy Savings/year				\$ 494	\$ 494
Total Net Energy Savings/year Correct.				\$ 387	\$ 387
Installed cost				\$ 640	\$ 270
Payback Period (years)				1.77	0.75

Payback less than one year

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